APPENDIX A

1-34 (Cancelled).

35 (Currently Amended). A diffraction grating, comprising:

a reflective material having a blazed surface with a blaze angle between about 27 degrees and about 39 degrees; and

an optically transmissive material disposed adjacent the reflective material and having an index of refraction (n), wherein the blazed surface of the reflective material has approximately (500±110)*n number of grooves per millimeter such that the diffraction grating has an efficiency of at least 80% for all polarization states over at least one of the C-band and L-band wavelength ranges.

36 (Original). The diffraction grating of claim 35, wherein:

the number of grooves per millimeter for the reflective material is between about 710 and about 790;

the index of refraction of the optically transmissive material is between about 1.44 and about 1.64; and

the blaze angle is between about 27 and about 32 degrees.

37 (Original). The diffraction grating of claim 35, wherein:

the diffraction order associated with the lowest loss is

the first order.

38 (Original). The diffraction grating of claim 35, wherein:

the number of grooves per millimeter for the reflective material is between about 850 and about 950;

the index of refraction of the optically transmissive material is between about 1.44 and about 1.64; and

the blaze angle is between about 31 and about 34 degrees.

39 (Original). The diffraction grating of claim 35, further comprising:

the number of grooves per millimeter for the reflective material is between about 950 and about 1050;

the index of refraction of the optically transmissive material is between about 1.44 and about 1.64; and

the blaze angle is between about 34 and about 39 degrees.

40-45 (Cancelled).

46 (Currently Amended). A diffraction grating, comprising:

a reflective material having a blazed surface with a blaze angle between about 37 degrees and about 40 degrees; and

an optically transmissive material disposed adjacent the

reflective material and having an index of refraction (n), wherein the blazed surface of the reflective material has approximately (200±40)*n number of grooves per millimeter such that the diffraction grating has an efficiency of at least 60% for all polarization states over the C-band wavelength range.

47 (Original). The diffraction grating of claim 46, wherein:

the number of grooves per millimeter for the reflective material is between about 260 and about 340; and

the index of refraction of the optically transmissive material is between about 1.44 and about 1.64.

48 (Original). The diffraction grating of claim 46, wherein:

the diffraction order associated with the lowest loss is the fourth order.

49 (Original). The diffraction grating of claim 46, wherein:

the reflective material is at least one of the following: gold material, aluminum material and silver material.

50 (Original). The diffraction grating of claim 46, further comprising:

a substantially planar substrate on which the reflective

material is formed.

51 (Currently Amended). A diffraction grating, comprising:

a reflective material having a blazed surface of grooves with a blaze angle between about 41 degrees and about 44 degrees; and

an optically transmissive material disposed adjacent the reflective material and having an index of refraction (n), wherein the blazed surface of the reflective material has approximately (450±40)*n number of grooves per millimeter such that the diffraction grating has an efficiency of at least 70% for all polarization states over the C-band wavelength range.

52 (Original). The diffraction grating of claim 51, wherein:

the number of grooves per millimeter for the reflective material is between about 560 and about 640; and

the index of refraction of the optically transmissive material is between about 1.44 and about 1.64.

53 (Original). The diffraction grating of claim 51, wherein:

the diffraction order associated with the lowest loss is the second order.

54 (Original). The diffraction grating of claim 51, wherein:

the reflective material is at least one of the following: gold material, aluminum material and silver material.

55 (Original). The diffraction grating of claim 51, further comprising:

a substantially planar substrate on which the reflective material is formed.

56 (Currently Amended). A diffraction grating, comprising:

a reflective material having a blazed surface with a blaze angle between about 68 degrees and about 76 degrees; and

an optically transmissive material disposed adjacent the reflective material and having an index of refraction (n), wherein the blazed surface of the reflective material has approximately (200±20)*n number of grooves per millimeter such that the diffraction grating has an efficiency of at least 60% for all polarization states over at least one of the C-band and L-band wavelength ranges.

57 (Original). The diffraction grating of claim 56, wherein:

the number of grooves per millimeter for the reflective material is between about 180 and about 220; and

the index of refraction of the optically transmissive material is approximately 1.0.

58 (Original). The diffraction grating of claim 56, wherein:

the diffraction order associated with the lowest loss is the fifth order.

59 (Original). The diffraction grating of claim 56, wherein:

the reflective material is at least one of the following: gold material, aluminum material and silver material.

60 (Original). The diffraction grating of claim 56, further comprising:

a substantially planar substrate on which the reflective material is formed.

61 (Currently Amended). A diffraction grating, comprising:

a reflective material having a blazed surface with a blaze angle between about 50 degrees and about 56 degrees; and

an optically transmissive material disposed adjacent the reflective material and having an index of refraction (n), wherein the blazed surface of the reflective material has approximately (250±30)*n number of grooves per millimeter such

that the diffraction grating has an efficiency of at least 60% for all polarization states over the C-band wavelength range.

62 (Original). The diffraction grating of claim 61, wherein:

the number of grooves per millimeter for the reflective material is between about 220 and about 280; and

the index of refraction of the optically transmissive material is approximately 1.0.

63 (Original). The diffraction grating of claim 61, wherein:

the diffraction order associated with the lowest loss is the fourth order.

64 (Original). The diffraction grating of claim 61, wherein:

the reflective material is at least one of the following: gold material, aluminum material and silver material.

65-100 (Cancelled).

101 (Currently Amended). A wavelength division device, comprising:

a plurality of first coupling components, each first component being capable of receiving a distinct carrier for

carrying a signal;

a second coupling component disposed adjacent the first coupling components and capable of receiving a distinct carrier for carrying one or more signals; and

a diffraction grating optically coupled to each carrier received by the first and second coupling components, comprising:

a blazed reflective material having a number of grooves per millimeter and a blazed angle between about 27 degrees and about 39 degrees; and

an optically transmissive material disposed adjacent the reflective material and having an index of refraction (n), wherein the number of grooves per millimeter is approximately equal to (500±110)*n such that the diffraction grating has an efficiency of at least 80% for all polarization states over at least one of the C-band and L-band wavelength ranges.

102 (Original). The wavelength division device of claim 101, wherein:

the index of refraction of the optically transmissive material is between about 1.44 and about 1.64;

the number of grooves per millimeter on the diffraction grating is between about 710 and about 790; and

the blaze angle is between about 27 degrees and about 32 degrees.

103 (Original). The wavelength division device of claim 101, wherein:

the diffraction order associated with the lowest loss is the first order.

104 (Original). The wavelength division device of claim 101, wherein:

the index of refraction of the optically transmissive material is between about 1.44 and about 1.64;

the number of grooves per millimeter on the diffraction grating is between about 850 and about 950; and

the blaze angle is between about 32 degrees and about 34 degrees.

105 (Original). The wavelength division device of claim 101, wherein:

the index of refraction of the optically transmissive material is between about 1.44 and about 1.64;

the number of grooves per millimeter on the diffraction grating is between about 950 and about 1050; and

the blaze angle is between about 34 degrees and about 39 degrees.

106-111 (Cancelled).

112 (Currently Amended). A wavelength division device, comprising:

a plurality of first coupling components, each first component being capable of receiving a distinct carrier for carrying a signal;

a second coupling component disposed adjacent the first coupling components and capable of receiving a distinct carrier for carrying one or more signals; and

a diffraction grating optically coupled to each carrier received by the first and second coupling components, comprising:

a blazed reflective material having a number of grooves per millimeter and a blaze angle between about thirty-seven and about forty degrees; and

an optically transmissive material disposed adjacent the reflective material and having an index of refraction (n), wherein the number of grooves per millimeter is approximately equal to (200±40)*n such that the diffraction grating has an

efficiency of at least 60% for all polarization states over the C-band wavelength range.

113 (Original). The wavelength division device of claim 112, wherein:

the diffraction order associated with the lowest loss is the fourth order.

114 (Original). The wavelength division device of claim 112, wherein:

the reflective material comprises at least one of the following materials: gold material, aluminum material and silver material.

115 (Original). The wavelength division device of claim 112, wherein:

the index of refraction is between about 1.44 and about 1.64; and

the number of grooves per millimeter of the diffraction grating is between about 260 and about 340.

116 (Original). The wavelength division device of claim 112, wherein:

the diffraction grating includes a substantially planar substrate.

117 (Currently Amended). A wavelength division device, comprising:

a plurality of first coupling components, each first component being capable of receiving a distinct carrier for carrying a signal;

a second coupling component disposed adjacent the first coupling components and capable of receiving a distinct carrier for carrying one or more signals; and

a diffraction grating optically coupled to each carrier received by the first and second coupling components, comprising:

a blazed reflective material having a number of grooves per millimeter and a blaze angle between about forty-one and about forty-four degrees; and

an optically transmissive material disposed adjacent the reflective material and having an index of refraction (n), wherein the number of grooves per millimeter is approximately equal to (450±40)*n such that the diffraction grating has an efficiency of at least 70% for all polarization states over the C-band wavelength range.

118 (Original). The wavelength division device of claim 117, wherein:

the diffraction order associated with the lowest loss is the second order.

119 (Original). The wavelength division device of claim 117, wherein:

the reflective material of the diffraction grating comprises at least one of the following materials: gold material, silver material and aluminum material.

120 (Original). The wavelength division device of claim 117, wherein:

the index of refraction is between about 1.44 and about 1.64; and

the number of grooves per millimeter on the diffraction grating is between about 560 and about 640.

121 (Original). The wavelength division device of claim 117, wherein:

the diffraction grating includes a substantially planar substrate.

122 (Currently Amended). A wavelength division device, comprising:

a plurality of first coupling components, each first component being capable of receiving a distinct carrier for carrying a signal;

a second coupling component disposed adjacent the first coupling components and capable of receiving a distinct carrier for carrying one or more signals; and

a diffraction grating optically coupled to each carrier received by the first and second coupling components, comprising:

a blazed reflective material having a number of grooves per millimeter and a blaze angle between about sixty-eight and about seventy-six degrees; and

an optically transmissive material disposed adjacent the reflective material and having an index of refraction (n), wherein the number of grooves per millimeter is approximately equal to (200±20)*n such that the diffraction grating has an efficiency of at least 60% for all polarization states over at least one of the C-band and L-band wavelength ranges.

123 (Original). The wavelength division device of claim 122,

wherein:

the diffraction order associated with the lowest loss is the fifth order.

124 (Original). The wavelength division device of claim 122, wherein:

the reflective material of the diffraction grating comprises at least one of the following materials: gold material, aluminum material and silver material.

125 (Original). The wavelength division device of claim 122, wherein:

the index of refraction is approximately one; and

the number of grooves per millimeter appearing on the diffraction grating is between about 180 and about 220.

126 (Original). The wavelength division device of claim 122, wherein:

the diffraction grating includes a substantially planar substrate.

127 (Currently Amended). A wavelength division device, comprising:

a plurality of first coupling components, each first component being capable of receiving a distinct carrier for carrying a signal;

a second coupling component disposed adjacent the first coupling components and capable of receiving a distinct carrier for carrying one or more signals; and

a diffraction grating optically coupled to each carrier received by the first and second coupling components, comprising:

a blazed reflective material having a ~~blazed surface with~~ number of grooves per millimeter and a blaze angle between about fifty and about fifty-six degrees; and

an optically transmissive material disposed substantially adjacent the reflective material having an index of refraction (n), wherein the ~~reflective material having a~~ number of grooves per millimeter is ~~being within a range~~ approximately equal to ~~defined by the equation~~ (250±30)*n~~,~~ ~~wherein n is the index of refraction of the optically transmissive material~~ such that the diffraction grating has an efficiency of at least 60% for all polarization states over the C-band wavelength range.

128 (Original). The wavelength division device of claim 127,

wherein:

the diffraction order associated with the lowest loss is the fourth order.

129 (Original). The wavelength division device of claim 127, wherein:

the reflective material of the diffraction grating comprises at least one of the following materials: gold material, aluminum material and silver material.

130 (Original). The wavelength division device of claim 127, wherein:

the diffraction grating includes a substantially planar substrate.

131 (Original). The wavelength division device of claim 127, wherein:

the index of refraction of the optically transmissive material is approximately one; and

the number of grooves per millimeter appearing on the diffraction grating is between about 220 and about 280.

132-145 (Cancelled).

146 (New). A diffraction grating, comprising:

a reflective material having a blazed surface of grooves with a blaze angle between about 27 degrees and about 39 degrees; and

an optically transmissive material disposed adjacent the reflective material and having an index of refraction (n), wherein the number of grooves per millimeter on the blazed surface of the reflective material is a function of the index of refraction (n) such that the diffraction grating has an efficiency of at least 80% for all polarization states over at least one of the C-band and L-band wavelength ranges.

147 (New). A diffraction grating, comprising:

a reflective material having a blazed surface of grooves with a blaze angle between about 37 degrees and about 40 degrees; and

an optically transmissive material disposed adjacent the reflective material and having an index of refraction (n), wherein the number of grooves per millimeter on the blazed surface of the reflective material is a function of the index of refraction (n) such that the diffraction grating has an efficiency of at least 60% for all polarization states over the

C-band wavelength range.

148 (New). A diffraction grating, comprising:

a reflective material having a blazed surface of grooves with a blaze angle between about 41 degrees and about 44 degrees; and

an optically transmissive material disposed adjacent the reflective material and having an index of refraction (n), wherein the number of grooves per millimeter on the blazed surface of the reflective material is a function of the index of refraction (n) such that the diffraction grating has an efficiency of at least 70% for all polarization states over the C-band wavelength range.

149 (New). A diffraction grating, comprising:

a reflective material having a blazed surface of grooves with a blaze angle between about 68 degrees and about 76 degrees; and

an optically transmissive material disposed adjacent the reflective material and having an index of refraction (n), wherein the number of grooves per millimeter on the blazed surface of the reflective material is a function of the index of refraction (n) such that the diffraction grating has an

efficiency of at least 60% for all polarization states over at least one of the C-band and L-band wavelength ranges.

150 (New). A diffraction grating, comprising:

a reflective material having a blazed surface of grooves with a blaze angle between about 50 degrees and about 56 degrees; and

an optically transmissive material disposed adjacent the reflective material and having an index of refraction (n), wherein the number of grooves per millimeter on the blazed surface of the reflective material is a function of the index of refraction (n) such that the diffraction grating has an efficiency of at least 60% for all polarization states over the C-band wavelength range.